Contribution ID: **111** Type: **Oral**

Constraining the Flavor Structure of Lorentz Violation Hamiltonian with the Measurement of Astrophysical Neutrino Flavor Compositions

Thursday, 10 August 2017 15:00 (15 minutes)

We study Lorentz violation effects to flavor transitions of high energy astrophysical neutrinos. It is shown that the appearance of Lorentz violating Hamiltonian can drastically change the flavor transition probabilities of
astrophysical neutrinos. Predictions of Lorentz violation effects to flavor compositions of astrophysical neutrinos arriving on Earth are compared with IceCube flavor composition measurement which analyzes astrophysical neutrino events in the energy range between 25 TeV and 2.8 PeV. Such a comparison indicates that the future IceCube-Gen2 will be able to place stringent constraints on Lorentz violating Hamiltonian in the neutrino sector.
We work out these expected constraints for different flavor structures of Lorentz violating Hamiltonian. In some cases these expected constraints can improve upon the current constraints obtained from other types of experiments by more than two orders of magnitudes.

Primary author: Mr LAI, Wei-Hao (National Chiao-Tung University)

Co-authors: LIN, Guey-Lin (National Chiao-Tung University, Taiwan); LAI, KWANG-CHANG (CHANG GUNG UNIVERSITY)

Presenter: Mr LAI, Wei-Hao (National Chiao-Tung University)

Session Classification: Neutrinos

Track Classification: Neutrinos (astrophysical, atmospheric)